

Contents

Volume 26 Number 1, January 1995

- i Editorial
- 1 Status of freshwater prawn farming: a review *Michael B New*
- 55 Combined effects of fertilization rate, manuring and feed pellet application on fish performance and water quality in polyculture ponds *A Milstein, A Alkon, I Karplus, M Kochba and Y Avnimelech*
- 67 An investigation into the reproducibility of triploid brown trout, *Salmo trutta* L., production using heat shock *J J Moffet and W W Crozier*
- 71 Predictive equations for managing semi-intensive grow-out of a freshwater crayfish (marron), *Cherax tenuimanus* (Smith 1912) (Decapoda: Parastacidae), on a commercial farm *N M Morrissey, P Walker and W Moore*

Volume 26 Number 2, February 1995

- 81 Chinese integrated fish farming: a comparative bioeconomic analysis *H Chen, B Hu and A T Charles*
- 95 A survey of statistical use in aquacultural research *J Riley and M Darmi*
- 103 Production of the Malawi chambao, *Oreochromis karongae* (Trewavas, 1941) association, and *Oreochromis shiranus* (Boulenger, 1896) in polyculture with the African catfish, *Clarias gariepinus* (Burchelt, 1822) *A O Maluwa, A C Brooks and B B Rashidi*
- 109 Effect of fish meal quality on growth of juvenile wolffish, *Anarhichas lupus* L. *E Moksness, G Rosenlund and Ø Lie*
- 117 A conceptual production model for freshwater crayfish pond culture incorporating detrital forage *B D Mitchell, T Anderson, S S De Silva, R O Collins, J R Chavez, P L Jones and C M Austin*
- 129 Genetic variation in susceptibility of Atlantic salmon, *Salmo salar* L., to furunculosis, BKD and cold water vibriosis *J Gjedrem and H M Gjøen*
- 135 Progress towards the identification of the sex-determining mechanism of the sole, *Solea solea* (L.), by the induction of diploid gynogenesis *B R Howell, S M Baynes and D Thompson*
- 141 Substitution of soybean meal and oil for fish meal in practical diets fed to channel catfish, *Ictalurus punctatus* (Rafinesque): effects on body composition *I E H Belal and H Assem*
- 147 Editorial note: Correct taxonomic identification of *Artemia* species *P Sorgeloos and J A Beardmore*

Volume 26 Number 3, March 1995

- 149 Carbohydrate nutrition in Atlantic salmon, *Salmo salar* L.: growth and feed utilization *G-I Hemre, K Sandnes, Ø Lie, O Torrisen and R Waagbø*
- 155 Early growth and survival of striped bass, *Morone saxatilis* (Walbaum), and its phenotypically similar hybrid (*M. saxatilis* x *M. chrysops*) using an otolith marking method *D H Secor, J M Dean, F W Sessions and T A Curtis*

161 Use of mixed feeding schedules in fish culture: performance of common carp, *Cyprinus carpio* L., on plant and animal protein based diets M C Nandeesha, S S De Silva and D Krishan Murthy

167 Dehulled solvent-extracted soybean meal as a protein source in diets for Atlantic salmon, *Salmo salar* L. J J Olli, Å Krogdahl and A Väbene

175 Minimum requirement of vitamin E for Atlantic salmon, *Salmo salar* L., at first feeding K Hamre and Ø Lie

185 Investigation to determine digestibility coefficients of various raw materials in diets for gilthead sea bream, *Sparus auratus* L. I Nengas, M N Alexis, S J Davies and G Petichakis

195 Growth of juveniles of White Sea common wolffish, *Anarhichas lupus* L., in captivity D A Pavlov

205 Phenotypic variation in meiotic and mitotic gynogenetic diploids of the Nile tilapia, *Oreochromis niloticus* (L.) M G Hussain, B J McAndrew and D J Penman

213 Second polar body retention and gynogenesis induced by thermal shock in pink salmon, *Oncorhynchus gorbuscha* (Walbaum) W W Smoker, P A Crandell and M Matsuoka

Short Communications

221 Hatchery-reared landlocked Arctic char, *Salvelinus alpinus* (L.), from Lake Takvatn reared in fresh and sea water: effect of salinity on digestibility of protein and individual amino acids in a capelin roe diet and commercial feed E Ringø

225 A simple device for the separation of weak larvae of *Macrobrachium rosenbergii* (De Man) I S Bright Singh and R Philip

229 Induction of tetraploidy in brown trout, *Salmo trutta* L., using hydrostatic pressure J M Myers, S F Powell and B J McAndrew

Volume 26 Number 4, April 1995

233 Artificial reproduction and fingerling production of the African catfish, *Clarias gariepinus* (Burchell 1822), in protected and unprotected ponds G J de Graaf, F Galemoni and B Banzoussi

243 Diluted rotifer, *Brachionus plicatilis* (Muller), extract as culture medium stimulates hatching of red sea bream, *Pagrus major* (Temminck & Schlegel) K Takiis, M Nakamura, Y Tanaka and H Kumai

249 Observations on simulated depuration trials with Manila clam, *Tapes philippinarum* Adams and Reeve B E Spencer and D B Edwards

265 Effects of anaesthetics on the water parameters in a simulated transport experiment of platyfish, *Xiphophorus maculatus* (Günther) F-C Guo, L-H Teo and T-W Chen

273 Simple field methods for monitoring stress and general condition of fish G K Iwama, J D Morgan and B A Barton

Short Communications

283 Amino acid, fatty acid and mineral element profile of juvenile South African abalone, *Haliotis midae* L. J Knauer, D Brady, J R Duncan and T Hecht

289 Evidence for the heritable nature of spontaneous diploidization in common carp, *Cyprinus carpio* L., eggs N Cherfas, B Gomelsky, N Ben-Dom and G Hulata

293 Sex reversal and nursery growth of Nile tilapia, *Oreochromis niloticus* (L.), free-swimming in earthen ponds R P Phelps, G Conterras Salazar, V Abe and B J Argue
 297 Book Reviews

Volume 26 Number 5, May 1995

299 Total replacement of fish meal by soy bean meal, with various percentages of supplemental L-methionine, in diets for blue catfish, *Ictalurus furcatus* (Lesueur) C D Webster, L S Goodgame-Tiu and J H Tidwell
 307 Survival rates of tilapia, *Oreochromis spilurus* (Günther), fingerlings reared at high densities during winter using warm underground sea water E M Cruz and M T Ridha
 311 Assessment of flesh colour in Atlantic salmon, *Salmo salar* L. R Christiansen, G Struksnæs, R Estermann and O J Torrisen
 323 Growth and feeding of white steenbras, *Lithognathus lithognathus* (Cuvier) (Sparidae), under experimental culture conditions S A Harris and P A Cook
 331 Influence of dietary vitamin B₆ on tissue vitamin B₆ contents and immunity in Atlantic salmon, *Salmo salar* L. S Albrektsen, K Sandnes, J Glette and R Waagbø
 341 Time of a single daily meal influences growth performance in rainbow trout, *Oncorhynchus mykiss* (Walbaum) T Boujard, A Gelineau and G Corraze
 351 Effect of dietary incorporation of crop residues on growth, mortality and feed conversion ratio of the African catfish, *Clarias gariepinus* (Burchell) D P Bureau, J de la Noüe and P Jaruratjamorn
 361 Effect of dietary avoparcin on performances and carcass composition in rainbow trout, *Oncorhynchus mykiss* (Walbaum) I Zoccarato, L Gasco, S Leveroni Calvi, R Fortina, M L Bianchini and X Rollin
 367 Triploidization of European catfish, *Silurus glanis* L., by heat shock O Linhart and M Flajšhans

Volume 26 Number 6, June 1995

371 Uses of macadamia presscake as a protein feedstuff in practical diets for tilapia, *Oreochromis niloticus* (L.) A M Balogun and O A Fagbenro
 379 Maximizing lobster, *Homarus gammarus* (L.), egg and larval viability J F Wickins, T W Beard and A R Child
 393 Stress-induced impairment of predator evasion and non-predator mortality in Pacific salmon B L Olla, M W Davis and C B Schreck
 399 Effect of dietary carbohydrates on gonadal development in broodstock cod, *Gadus morhua* L. G-I Hemre, A Mangor-Jensen, G Rosenlund, R Waagbø and Ø lie
 409 Sexual dimorphism in yellow European eels, *Anguilla anguilla* (L.) D Kushnirov and G Degani
 415 Parameterization and calibration of a model to simulate effects of feeding level and feed composition on growth of *Oreochromis niloticus* (L.) and *Oncorhynchus mykiss* (Walbaum) A A van Dam and F W T Penning De Vries
 427 Simulation of the effects of oxygen on food consumption and growth of Nile tilapia, *Oreochromis niloticus* (L.) A A van Dam and D Pauly
 441 Toxicity of four commonly used chemotherapeutic compounds to fry of the African catfish, *Clarias gariepinus* (Burchell) A Obiekezie and N Okafor
 447 Critical thermal maxima and minima for curimbatá, *Prochilodus scrofa* Steindachner, of two different sizes W R Barrionuevo and M N Fernandes

Volume 26 Number 7, July 1995

451 Effect of protein to energy ratio in purified diets on growth performance, feed utilization and body composition of Mozambique tilapia, *Oreochromis mossambicus* (Peters) *A A El-Dahhar and R T Lovell*

459 Participation of women in oyster and mussel farming in Western Visayas, Philippines *S V Star, G P B Samonte and A T Espada*

469 Predicting the effect of cages on nutrient status of Scottish freshwater lochs using mass-balance models *L A Kelly*

479 Preliminary studies of feminization and growth of *Oreochromis spilurus* (Günther) by oral administration of 17 α -ethynodiol in sea water *M T Ridha and K P Lone*

483 Influence of improved feed quality and food conversion ratios on phosphorus loadings from cage culture of rainbow trout, *Oncorhynchus mykiss* (Walbaum), in freshwater lakes *F M Gavine, M J Phillips and A Murray*

497 Spatfall of pearl oyster, *Pteria sterna* (Gould), on experimental collectors at Bahía de La Paz, South Baja California, Mexico *M Monteforte, E Kappelman-Piña and B Lopez-Espinosa*

Volume 26 Number 8, August 1995

513 Introduction

515 Changes in zooplankton structure around illuminated cage culture *A Mamcarz*

527 Control of phosphorus inputs to a freshwater lake: a case study *M W Marsden, I R Fozard, D Clark, N McLean and M R Smith*

539 Is a better strategy necessary for development of native species for aquaculture? A Mexican case study *L G Ross and M C M Beveridge*

549 Leaching of four different antibacterials from oil- and alginate-coated fish-feed pellets *K Duis, V Inglis, M C M Beveridge and C Hammer*

557 Monitoring the environmental impacts and consent compliance of freshwater fish farms *C R Doughty and C D McPhail*

567 Use of alternative disinfectants, individually and in combination, in aquacultural wastewater treatment *H Liltved and B Landfald*

577 Partial replacement of fish meal with spray-dried blood powder to reduce phosphorus concentrations in diets for juvenile trout, *Oncorhynchus mykiss* (Walbaum) *J M Luzier, R C Summerfelt and H G Ketola*

589 Rates of fish waste production and effluent discharge from a recirculating system (BIOFISH) under commercial conditions *B Eikebrokk, R Piedrahita and Y Ulgenes*

601 Nutrient flows in an integrated pig, maggot and fish production system *S Nuov, D C Little and A Yakupitiyage*

607 Bioavailability of phosphorous in fish farm effluents to freshwater phytoplankton *Z Massik and M J Costello*

Volume 26 Number 9, September 1995

617 Introduction

619 Effects of introduction of common carp, *Cyprinus carpio* (L.), on the pond ecology and growth of fish in polyculture *M A Wahab, Z F Ahmed, M Aminul Islam, M S Haq and S M Rahmatullah*

629 Ecotoxicological risk assessment of chemicals used in aquaculture: A regulatory viewpoint *C J Redshaw*

639 Nitrogenous excretion in juvenile turbot, *Scophthalmus maximus* (L.), under controlled conditions *A Dosdat, R Metailler, N Tetu, F Servais, H Chartois, C Huelvan and E Desbruyeres*

651 Digestibility, apparent amino acid availability and waste generation potential of soybean flour: poultry meat meal blend based diets for tilapia, *Oreochromis niloticus* (L.), fingerlings *S O E Sadiku and K Jauncey*

659 Use of macrobenthic infaunal communities in the monitoring and control of the impact of marine cage fish farming *A R Henderson and D J Ross*

679 New animal drug approvals and the United States aquaculture industry: a partnership for growth *T A Bell*

687 The economic impact of feeding restrictions on US catfish, *Ictalurus punctatus* (Rafinesque), aquaculture operations *U Hatch and T Hanson*

701 Auditing nutrient discharges from fish farms: theoretical and practical considerations *O Einen, I Holmefjord, T Åsgård and C Talbot*

Volume 26 Number 10, October 1995

715 Pond farming of Nile tilapia, *Oreochromis niloticus* (L.), in northern Cameroon. Feeding combinations of cottonseed cake and brewery waste in fingerling culture, hand-sexed male monosex culture, and mixed culture with police-fish, *Clarias gariepinus* (Burchell) *A J Middendorp*

723 Pond farming of Nile tilapia, *Oreochromis niloticus* (L.), in northern Cameroon. Mixed culture of large tilapia (>200 g) with cattle manure and cottonseed cake as pond inputs, and African catfish, *Clarias gariepinus* (Burchell), as police-fish *A J Middendorp*

731 Pond farming of Nile tilapia, *Oreochromis niloticus* (L.), in northern Cameroon. Comparing two different strategies for feeding cottonseed cake in tilapia male monosex culture *A J Middendorp and E A Huismans*

739 Pond farming of Nile tilapia, *Oreochromis niloticus* (L.), in northern Cameroon. Controlling a sexing error of 1% in hand-sexed male tilapia monosex culture by African catfish, *Clarias gariepinus* (Burchell) *A J Middendorp*

749 Pond farming of Nile tilapia, *Oreochromis niloticus* (L.), in northern Cameroon. Adding hand-sexed male tilapia to graze the dense algal blooms in ponds with African catfish, *Clarias gariepinus* (Burchell) *A J Middendorp*

755 Acute toxicity of alkylbenzene sulphonate (ABS) detergent to the toothed carp, *Aphyosemion gairdneri* (L.), *V N Okwuosa and E Omorogbe*

759 Variation in yolk absorption and early growth of brook charr *Salvelinus fontinalis* (Mitchill), Arctic charr, *Salvelinus alpinus* (L.), and their hybrids *S Dumas, J M Blanc, C Audet and J de la Noüe*

765 Evaluation of some red tilapia strains for aquaculture: growth and colour segregation in hybrid progeny *G Hulata, I Karplus and S Harpaz*

773 Intestinal microflora of salmonids: a review *E Ringø, E Strøm and J-A Tabachek*

791 Survival of salmon lice, *Lepeophtheirus salmonis* Kreyer, o Arctic charr, *Salvelinus alpinus* (L.), in fresh water *B Finstadvik, P A Bjørn and S T Nilsen*

Volume 26 Number 11, November 1995

797 Disease resistance and growth of two inbred carp *Cyprinus carpio* L. lines and their hybrid in pond culture *G F Wiegertjes, A Pilarczyk and W B Van Muiswinkel*

801 A uniform method for cryopreservation of semen of the salmonid fishes

Oncorhynchus mykiss (Walbaum), *Salmo trutta f. fario* L., *Salmo trutta f. lacustris* L., *Coregonus sp.* F *Lahnsteiner*, T *Weismann* and R A *Patzner*

809 Smolt characteristics of small first-time migrant, and resident Arctic charr, *Salvelinus alpinus* (L.), from a river system in northern Norway A M *Arnesen*, G *Lysfjord* and B *Damsgård*

819 Recent developments of shrimp, *Penaeus monodon* (Fabricius) and *Penaeus merguiensis* (de Man), culture in East Java A M *Hariati*, D G R *Wiadnya*, A *Prajitno*, M *Sukkel*, J H *Boon* and M C J *Verdegem*

831 Alcohol soluble components of soybeans seem to reduce fat digestibility in fish-meal-based diets for Atlantic salmon, *Salmo salar* L. J J *Olli* and Å *Krogdahl*

837 Tag retention and survival of juvenile lobsters, *Homarus gammarus* (L.), marked with coded wire tags I *Uglem* and S *Grimsen*

843 Mortality, growth and somatic secondary production of the bivalve, *Pinna rugosa* (sowerby), in suspended and bottom culture in Bahia de La Paz, Mexico O *Arizpe* C

855 Replacing fish meal with chicken offal silage in commercial *Oreochromis niloticus* (L.), feed I E H *Belal*, A *Al-Owaifeir* and M *Al-Dosari*

Short Communication

859 Effects of a zeolitic product (Zestec-56) on ammonium production in a rainbow trout *Oncorhynchus mykiss* (Walbaum) fry culture S *Ferreiro Almeda*, R *García García*, A *Feberero Castejón* and J L *López Ruiz*

Volume 26 Number 12 December 1995

861 Studies with an experimental model for pancreas disease of Atlantic salmon *Salmo Salar* L. T M *Murphy*, E M *Drinan* and F *Gannon*

875 Phenotypic and genetic parameters of body size traits in Atlantic salmon *Salmo Salar* L. M *Rye* and T *Restie*

887 Effects of anaesthetics on the oxygen consumption rates of platyfish *Xiphophorus maculatus* (Günther) F C *Guo*, L H *Teo* and T W *Chen*

895 The effect of diet and photoperiod on ammonia efflux rates of the African catfish, *Clarias gariepinus* (Burchell, 1822) L G *Buttle*, R F *Uglow* and I G *Cowx*

901 The effect of dietary protein level on growth, protein utilization and body composition of *Colossoma macropomum* (Cuvier) M B *van der Meer*, M A M *Machiels* and M C J *Verdegem*

911 Effect of organic fertilizer on heterotrophs and autotrophs: implications for water quality management J *Qin*, D A *Culver* and N *Yu*

921 Index

